

Application No. 10/809,149
Amendment dated November 20, 2006
Reply to Office Action of May 18, 2006

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for inserting a spinal implant having at least in part upper and lower arcuate portions at least in part within and across the generally restored height of a disc space between two adjacent vertebral bodies of a human spine, the spine having a longitudinal axis, the method comprising the steps of:

positioning into the disc space between the adjacent vertebral bodies a guard having a body and an extension for insertion at least in part into the disc space and for bearing against end plates of the adjacent vertebral bodies to restore the spacing of the disc space between the adjacent vertebrae, said guard having a first portion oriented toward one of the adjacent vertebral bodies and a second portion oriented toward another of the adjacent vertebral bodies, said first and second portions being rotatably articulating relative to one another such that when said body moves from an open position to a closed position said extension moves from an insertion position to a deployed position to move the adjacent vertebral bodies apart;

rotatably articulating said guard about an axis that is generally perpendicular to the longitudinal axis of the spine to move said body from an open position to a closed position and said extension from an insertion position to a deployed position to move the adjacent vertebral bodies apart; and

forming, through said guard, an opening having opposed arcuate portions across the height of the disc space and into at least a portion of the endplates of the adjacent vertebral bodies.

2. (original) The method of claim 1, further comprising the step of performing the spinal implant surgery from a position posterior to the transverse processes of

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the vertebrae adjacent the disc space.

3. (original) The method of claim 1, further comprising the steps of performing the procedure on both sides of the spinal midline of the spine and inserting two implants into the spine, each of the implants having a width less than half the width of the disc space.
4. (original) The method of claim 1, wherein the positioning step includes placing the body of the guard in the open position to facilitate insertion and removal of the extension into and from the disc space.
5. (original) The method of claim 1, wherein the positioning step includes the step of positioning a guard having multiple extensions for insertion into the disc space and for bearing against the end plates of the two adjacent vertebral bodies.
6. (original) The method of claim 1, wherein the positioning step includes the step of inducing angulation to the adjacent vertebral bodies relative to one another.
7. (original) The method of claim 1, wherein the positioning step includes the step of driving the extension into the disc space.
8. (original) The method of claim 1, wherein the rotatably articulating step includes orienting the adjacent vertebral bodies in a predetermined relationship relative to each other.
9. (original) The method of claim 1, wherein the rotatably articulating step includes the step of inducing lordosis to the adjacent vertebral bodies.
10. (original) The method of claim 1, further comprising the step of securing the body of the guard in the closed position.
11. (original) The method of claim 1, wherein the forming step includes the step of forming the implantation space with a bone removal device.
12. (original) The method of claim 1, wherein the step of forming includes the step of inserting a bone removal device through the guard to a desired depth.
13. (original) The method of claim 1, wherein the forming step includes the step of one of milling, drilling, reaming, and trephining the implantation space.

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14. (original) The method of claim 1, wherein the forming step includes the step of forming opposed receiving surfaces in the end plates of the vertebral bodies corresponding at least in part in size, shape, and contour to an implant to be implanted.
15. (original) The method of claim 1, further comprising the step of inserting the implant into the implantation space.
16. (original) The method of claim 15, wherein the inserting step includes the step of inserting the implant through the guard.
17. (original) The method of claim 15, wherein the inserting step includes the step of inserting the implant after removing the guard from the disc space.
18. (original) The method of claim 15, wherein the inserting step includes the step of inserting an implant having a height corresponding to the height of the implantation space formed through the guard.
19. (currently amended) The method of claim 15, wherein the inserting step includes the step of inserting an implant having a height greater than the maximum height of the implantation space opening between the adjacent vertebral bodies formed through the guard during the forming step.
20. (original) The method of claim 15, wherein the step of inserting includes the step of threading the implant into the implantation space.
21. (original) The method of claim 15, wherein the step of inserting the implant includes the step of using an implant inserter to insert the implant through the guard and into the implantation space.
22. (original) The method of claim 21, further comprising the step of removing the implant inserter from the guard after the step of using the implant inserter to insert the implant.
23. (original) The method of claim 15, wherein the step of inserting the implant includes the step of screwing the implant into the implantation space with an implant inserter.

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24. (original) The method of claim 15, wherein the inserting step includes inserting a spinal implant that is a spinal fusion implant for promoting fusion between adjacent vertebral bodies, the implant having at least in part arcuate upper and lower surfaces for placement between and in contact with the adjacent vertebral bodies, each of the upper and lower surfaces having at least one opening adapted to permit for the growth of bone from adjacent vertebral body to adjacent vertebral body through the implant.
25. (original) The method of claim 15, wherein the inserting step includes inserting a spinal fusion implant having upper and lower surfaces and a hollow therebetween for holding fusion promoting substances.
26. (original) The method of claim 15, wherein the step of inserting includes inserting an implant that is expandable into the implantation space in the spine.
27. (original) The method of claim 15, wherein the inserting step includes the step of inserting an implant that is an inert spacer.
28. (original) The method of claim 15, wherein the inserting step includes the step of inserting an implant that is an artificial disc.
29. (original) The method of claim 15, wherein the inserting step includes the step of inserting an implant that is a bone graft.
30. (original) The method of claim 15, wherein the inserting step includes inserting a spinal fusion implant with the upper and lower members being at least in part arcuate.
31. (original) The method of claim 15, wherein the inserting step includes inserting an implant having surface projections configured to resist expulsion of the implant from the implantation space.
32. (original) The method of claim 15, further comprising the step of loading the implant with fusion promoting substance.
33. (original) The method of claim 32, wherein the step of loading includes the step of compressively loading the implant with fusion promoting substance.

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34. (original) The method of claim 32, wherein the loading step includes loading the implant with the fusion promoting substance being selected from one of bone, bone derived products, demineralized bone matrix, ossifying proteins, bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
35. (original) The method of claim 32, further comprising the step of retaining the fusion promoting substance within the implant after the step of loading.
36. (original) The method of claim 35, wherein the step of retaining includes the step of attaching a cap to the implant to retain the fusion promoting substance.
37. (original) The method of claim 15, further comprising the step of treating the implant with a fusion promoting substance.
38. (original) The method of claim 15, wherein the implant is in combination with a chemical substance adapted to inhibit scar formation.
39. (original) The method of claim 15, wherein the implant is in combination with an antimicrobial material.
40. (original) The method of claim 15, wherein the inserting step includes inserting an implant comprising a fusion promoting substance.
41. (original) The method of claim 15, wherein the inserting step includes inserting an implant comprising a bone ingrowth surface.
42. (original) The method of claim 15, wherein the inserting step includes the step of inserting an implant comprised at least in part of one of bone and bone growth promoting material.
43. (original) The method of claim 15, wherein the implant is in combination with at least one of a fusion promoting substance, bone, bone growth promoting material, bone derived products, demineralized bone matrix, ossifying proteins, bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
44. (original) The method of claim 1, further comprising the steps of collapsing the extensions and removing the guard from the disc space.